UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/664,874	09/19/2000	Theodore Calderone	AGLE0005	5332

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EXAMINER
USTARIS, JOSEPH G

ART UNIT	PAPER NUMBER
2611	

DATE MAILED: 04/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.		Applicant(s)
Office Action Summary	09/664,874		CALDERONE ET AL.
	Examiner		**Art Unit**
	Joseph G Ustaris		2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____.

2a) ☐ This action is **FINAL.**   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-46_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☒ Claim(s) _42 and 45_ is/are allowed.

6) ☒ Claim(s) _1-18, 21-38, 41, 43, 44, 46_ is/are rejected.

7) ☒ Claim(s) _19, 20, 39 and 40_ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on _31 January 2001_ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _3_.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ . .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Specification

1.   The abstract is objected to because of the following informalities:

- The abstract exceeds the maximum word length of 150 words. Please

    revise the abstract's contents in order to meet the proper format of an

    abstract.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly
claiming the subject matter which the applicant regards as his invention.

Claim 34 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite

for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention.

Claim 34 recites the limitation "said timestamp" in page 21 line 11. There is

insufficient antecedent basis for this limitation in the claim. The office will assume that

claim 34 is dependent off claim 33 in order to give proper antecedent basis.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set
forth in section 102 of this title, if the differences between the subject matter sought to be patented and
the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains.
Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 21, 22, 41, and 44 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Dubberly et al. (US005581555A) in view of Chen (US006570913B1).

Regarding claim 1, Dubberly et al. (Dubberly) discloses a reserve path allocation

and contention resolution scheme for a broadband communications system. Dubberly

discloses that the broadcast communications system has a headend that is responsible

for managing the upstream transmission spectrum where it can receive data

simultaneously from all upstream channels (See Fig. 11 and column 23 lines 25-40; Fig.

15 and column 38 lines 25-40). The headend serves a number of customer interface

units (CIUs) or set top terminals or "set-top boxes" (See column 25 lines 60-67),

wherein the CIUs are connected to the headend via a unique logical addressable nodes

or "a particular one of one or more nodes" (See Fig. 1 and column 36 lines 35-40). The

communication between the headend and CIUs are via multiple upstream/downstream

channels, wherein transmissions through the different upstream/downstream channels

are occurring simultaneously or "parallel transmission model" (See Fig. 11 and 15).

Dubberly increases the bandwidth by efficiently allocating the upstream spectrum,

however Dubberly does not disclose a system where bandwidth is increased in a

frequency hopping transmission system.

Chen discloses a method and system for selecting optimum frequencies for

upstream data transmissions in a frequency hopping transmission system. The system

performs a lookahead, wherein the process locates frequency bands that are free of

noise and uses those frequencies to hop. Ultimately, the lookahead process increases

the bandwidth of the upstream much like Dubberly (See column 6 line 60 – column 7 line 11 and column 9 lines 17-40). Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to perform the allocating process disclosed by Dubberly within a frequency hopping transmission system, as taught by Chen, in order to provide an even more efficient means of increasing bandwidth within the upstream spectrum, thereby increasing the upstream data rate.

Regarding claim 2, Dubberly discloses that the headend monitors the noise level and signal performance of the upstream to determine which channels are available and which channels have excessive noise, or "not available due to interference" (See column 8 lines 50-65). The headend marks which channels have excessive noise within data table and notifies the headend to reallocate those channels to a channel with acceptable noise levels (See column 28 lines 30-55). This process is performed all the time, where it is inherent that the headend performs this process at start up and periodically thereafter.

Claim 21 contains the limitations of claim 1 (wherein the system performs the method) and is analyzed as previously discussed with respect to that claim.

Claim 22 contains the limitations of claims 2 and 21 and is analyzed as previously discussed with respect to those claims.

Claim 41 contains the limitations of claim 1 and is analyzed as previously discussed with respect to that claim.

Claim 44 contains the limitations of claim 41 and is analyzed as previously discussed with respect to that claim.

Claims 3-6, 8-10, 23-26, 28-30, 43, and 46 are rejected under 35 U.S.C. 103(a)

as being unpatentable over Dubberly et al. (US005581555A) in view of Chen

(US006570913B1) as applied to claims 1, 2, 21, 22, 41, and 44 above, and further in

view of Trofin et al. (US006661778B1).

Regarding claim 3, Dubberly in view of Chen lacks a feature where the headend

can determine how many active CIUs are present by polling the nodes.

Dubberly in view of Chen discloses that the headend polls each CIU to obtain its

identity and status information, wherein the CIUs are branched off nodes (See Fig. 1

and column 30 lines 55-60). Trofin et al. (Trofin) discloses a method and apparatus for

statistics collection in a data communication network. The system polls various nodes to

obtain the status. The status for each node would include the status of each of the

components within the node (See column 3 line 50 – column 4 line 10; column 4 lines

60-67). Therefore, it would have been obvious to one with ordinary skill in the art at the

time the invention was made to modify the headend and nodes disclosed by Dubberly in

view of Chen to poll nodes for the status, wherein each node contains the status of each

CIU, as taught by Trofin, in order to reduce the amount of components to poll thus

making the process more efficient and faster.

Regarding claim 4, the CIUs are assigned an upstream transmission channel by

the headend (See Dubberly Fig. 15).

Regarding claim 5, Official Notice is taken that it is well known to spread CIUs

evenly among the available upstream channels. Therefore it would have been obvious

to one with ordinary skill in the art at the time the invention was made to modify the

headed discloses by Dubberly in view of Chen to spread the CIUs evenly among the

available upstream channels in order to efficiently utilize each upstream channel without

overloading one particular upstream channel.

Regarding claim 6, the CIUs contain a frequency agile tuner, where it can tune to

an upstream channel assigned by the headend or "by sending channel selection

information" (See Dubberly Fig. 12 and 13; column 7 lines 20-40).

Regarding claim 8, the headend keeps a data table or "allocation table" that

stores which channels are assigned to each CIU and other status information (See

Dubberly Fig. 15).

Regarding claim 9, the data table shows which upstream channels are being

occupied or "deemed to be busy" (See Dubberly Fig. 15 and column 26 lines 9-25).

Regarding claim 10, the data table marks upstream channels that have

excessive noise with a noisy channel flag = 1. The noisy upstream channels are not

used until the noise level drops below a certain threshold or "eliminates them

temporarily from said allocation table" (See Dubberly Fig. 15; column 28 lines 32-51 and

column 7 lines 20-40).

Claim 23 contains the limitations of claims 3 and 22 and is analyzed as

previously discussed with respect to those claims.

Claim 24 contains the limitations of claims 4 and 23 and is analyzed as

previously discussed with respect to those claims.

Claim 25 contains the limitations of claims 5 and 24 and is analyzed as previously discussed with respect to those claims.

Claim 26 contains the limitations of claims 6 and 24 and is analyzed as previously discussed with respect to those claims.

Claim 28 contains the limitations of claims 8 and 24 and is analyzed as previously discussed with respect to those claims.

Claim 29 contains the limitations of claims 9 and 28 and is analyzed as previously discussed with respect to those claims.

Claim 30 contains the limitations of claims 10 and 28 and is analyzed as previously discussed with respect to those claims.

Claim 43 contains the limitations of claims 4 and 8 and is analyzed as previously discussed with respect to those claims.

Claim 46 contains the limitations of claim 43 and is analyzed as previously discussed with respect to that claim.

Claims 7 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dubberly et al. (US005581555A) in view of Chen (US006570913B1) and in further view of Trofin et al. (US006661778B1) as applied to claims 3-6, 8-10, 23-26, 28-30, 43, and 46 above, and further in view of Eng (US005963557A).

Regarding claim 7, Dubberly in view of Chen and in further view of Trofin lacks a feature where the channel selection information is sent using a separate downstream transmission channel.

Eng discloses a communications network that utilizes an upstream control channel, an upstream payload channel, and a downstream control and payload channel. Eng discloses that packets containing assignment information is sent down the downstream control and payload channel, while the other downstream payload channels are used for other data (See Fig. 8 and column 4 lines 45-60). Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to modify the headend disclosed by Dubberly in view of Chen and in further view of Trofin to be able to send assignment data or "selection information" via a downstream control and payload channel or "separate downstream transmission channel", as taught by Eng, in order to provide a convenient and easy means of transmitting all control data to all CIUs in one specific channel thus eliminating the need for the CIUs to scan all downstream channels for control data.

Claim 27 contains the limitations of claims 7 and 26 and is analyzed as previously discussed with respect to those claims.

Claims 11-15 and 31-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dubberly et al. (US005581555A) in view of Chen (US006570913B1) as applied to claims 1, 2, 21, 22, 41, and 44 above, and further in view of Eng (US005963557A).

Regarding claim 11, Dubberly in view of Chen lacks a feature where the headend utilizes a slotted assignment system, wherein the slots comprise a specific slice of time.

Eng discloses a communications network that utilizes an upstream control

channel, an upstream payload channel, and a downstream control and payload

channel. Each downstream channel is divided into slots and each upstream channel

divided into slots and mini-slots where the slots and mini-slots can be assigned to

certain subscriber stations (SSs) or CIUs (See column 3 lines 5-65 and column 11 lines

5-60). The slots and mini-slots represent a time period when the SS may transmit.

Therefore, it would have been obvious to one with ordinary skill in the art at the time the

invention was made to modify the headend disclosed by Dubberly in view of Chen to

divide each upstream channel into slots and mini-slots and assign those to certain CIUs,

as taught by Eng, in order to allow multiple CIUs to access the headend via one channel

thus increasing the amount of CIUs served by the headend.

Regarding claim 12, Eng discloses that guard times or "guard band" are used to

provide sufficient time to allow the head end to receive all data sent from different SSs

or CIUs (See Eng column 3 lines 35-50 and column 6 lines 10-25).

Regarding claim 13, Eng discloses that time stamps are sent down to the SSs or

CIUs periodically or "regular intervals" (See Eng column 14 lines 10-25).

Regarding claim 14, the SSs or CIUs use the time stamps to synchronize the SS

or CIU clock or "slot timer" to the headend clock, wherein it is inherent that the SS or

CIU would reset the clock in order to be in sync with the headend clock.

Claim 15 contains the limitations of claim 3 (wherein the headend polls the

nodes) and is analyzed as previously discussed with respect to that claim. Furthermore,

the SSs or CIUs send a signal or "echo a specific command" back to the headend once

polled. Inherently the system periodically polls and periodically receives signal from the

SSs and CIUs in order to provide accurate timing measurements (See Eng column 3

lines 35-65).

Claim 31 contains the limitations of claims 11 and 21 and is analyzed as

previously discussed with respect to those claims.

Claim 32 contains the limitations of claims 12 and 31 and is analyzed as

previously discussed with respect to those claims.

Claim 33 contains the limitations of claims 13 and 31 and is analyzed as

previously discussed with respect to those claims.

Claim 34 contains the limitations of claims 14 and 33 and is analyzed as

previously discussed with respect to those claims.

Claim 35 contains the limitations of claims 15 and 33 and is analyzed as

previously discussed with respect to those claims.

Claims 16-18 and 36-38 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Dubberly et al. (US005581555A) in view of Chen (US006570913B1)

in further view of Eng (US005963557A) as applied to claims 11-15 and 31-35 above,

and further in view of Gibson et al. (US006445717B1).

Regarding claim 16, Dubberly in view of Chen in further view Eng disclose that

the headend polls each SS and waits for a signal to be transmitted back from the SS.

The signal is used to compute a propagation delay and maximum propagation delay for

each SS or "a value...for each of said one or more set-top boxes" to allow proper

alignment timing (See Eng column 3 lines 30-65 and column 15 lines 5-15). Inherently the headend has a timer mechanism that measures accurately the time it takes for a response, wherein the timer would start when the poll occurs, increments, and stops once a response is received. However, Dubberly in view of Chen in further view Eng lacks a feature where the response from the SS or CIU is an echo of a time stamp.

Gibson et al. (Gibson) discloses a method where a round-trip time may be calculated within a data transmission network. A host or headend sends data to a receiving station or CIU along with a time stamp. The receiving station echoes the time stamp back to the host within an acknowledge receipt. The host utilizes the time stamp echo to compute the round-trip time, which inherently includes processing delays (See column 6 line 54 – column 7 line 6). Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to modify the response made by the SS or CIU disclosed by Dubberly in view of Chen in further view Eng to include an acknowledge receipt including the echo of the time stamp, as taught by Gibson, in order to provide a means to compute the transmission time from the headend to a SS or CIU, thereby determining the network congestion.

Regarding claim 17, Official Notice is taken that it is well known to perform a process multiple times and average the results. Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to modify the headend disclosed by Dubberly in view of Chen in further view of Eng and in further view of Gibson to poll the SSs and CIUs multiple times and average the results in order

to provide a more accurate measure of total round-trip time thus reducing the chances

of collision.

Regarding claim 18, the headend sends each SS or CIU the corresponding

propagation delay and maximum propagation delay or "particular time correction factor",

where the SS or CIU uses the information to delay or "subtract" from a slot or mini-slot

boundary or "nominal slot time" in order to transmit information at the appropriate time

slot or mini-slot (See Eng column 3 lines 30-65; column 15 lines 1-10; column 16 lines

5-25).

Claim 36 contains the limitations of claims 16 and 35 and is analyzed as

previously discussed with respect to those claims.

Claim 37 contains the limitations of claims 17 and 36 and is analyzed as

previously discussed with respect to those claims.

Claim 38 contains the limitations of claims 18 and 36 and is analyzed as

previously discussed with respect to those claims.

Allowable Subject Matter

4.   Claims 42 and 45 are allowed.

Regarding claims 42 and 45, the prior art of record fails to show or fairly suggest

a set-top box with a timer interrupt and counter to count down the remaining time until

corresponding transmission slot is reached.

Claims 19, 20, 39, and 40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 19 and 20, the prior art of record fails to show or fairly suggest an interrupt to occur at a desired frequency, a set-top box with a timer interrupt, and counter to count down the remaining time until corresponding transmission slot is reached.

Claims 39 and 40 are objected to for the same reasons set forth in claims 19 and 20.

Conclusion

5.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Please take note of Kwok et al. (US006510157B2) for a similar method of assigning channels.
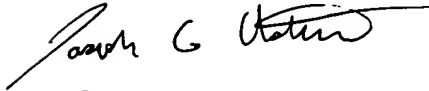
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Ustaris whose telephone number is (703) 305-0377. The examiner can normally be reached on Monday-Friday with alternate Fridays off from 7:30 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Faile, can be reached on (703) 305-4380. The fax phone number for this Group is (703) 872-9306.
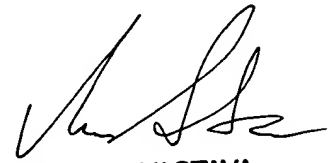
Any inquiry of general nature or relating to the status of this application or

proceeding should be directed to the Group Receptionist whose telephone number is

(703) 305-4700.

JGU
April 16, 2004

VIVEK SRIVASTAVA
PRIMARY EXAMINER